

3.3.1.2 Coolwater Streams

3.3.1.2.1 Community Overview

Coolwater streams are flowing waters with maximum summer water temperatures typically between 22 and 25 degrees Celsius. The watershed areas of these streams are usually less than 200 square miles with mean annual flow rates of less than 100 cubic feet per second. Coolwater streams occur sporadically in southern Wisconsin but are very common in the north. These streams contain a moderately diverse fish fauna with a mix of coldwater and warmwater species and a few coolwater specialists such as redbreasted dace.

3.3.1.2.2 Vertebrate Species of Greatest Conservation Need Associated with Coolwater Streams

Fifteen vertebrate Species of Greatest Conservation Need were identified as moderately or significantly associated with coolwater streams (Table 3-48).

Table 3-48. Vertebrate Species of Greatest Conservation Need that are (or historically were) moderately or significantly associated with coolwater streams.

<i>Species Significantly Associated with Coolwater Streams</i>
Birds
Louisiana Waterthrush
Herptiles
Blanchard's Cricket Frog
Pickereel Frog
Mink Frog
Wood Turtle
Mammals
Water Shrew
Northern Long-eared Bat
Silver-haired Bat
Eastern Red Bat
Hoary Bat
<i>Species Moderately Associated with Coolwater Streams</i>
Birds
Solitary Sandpiper
Fish
Redside Dace
Herptiles
Four-Toed Salamander
Blanding's Turtle
Queen Snake

In order to provide a framework for decision-makers to set priorities for conservation actions, the species identified in Table 3-48 were subject to further analysis. The additional analysis identified the best opportunities, by Ecological Landscape, for protection, restoration, and/or management of both coolwater streams and associated vertebrate Species of Greatest Conservation Need. The steps of this analysis were:

- Each species was examined relative to its probability of occurrence in each of the 16 Ecological Landscapes in Wisconsin. This information was then cross-referenced with the opportunity for


protection, restoration, and/or management of coolwater streams in each of the Ecological Landscapes (Tables 3-49 and 3-50).


- Using the analysis described above, a species was further selected if it had both a significant association with coolwater streams and a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of coolwater streams. These species are shown in Figure 3-2.


Table 3-49. Vertebrate Species of Greatest Conservation Need that are (or historically were) *significantly* associated with coolwater streams and their association with Ecological Landscapes that support coolwater streams.

Coolwater Streams	Birds (1)*		Herptiles (4)			Mammals (5)				
	Louisiana Waterthrush	Blanchard's Cricket Frog	Pickereel Frog	Mink Frog	Wood Turtle	Water Shrew	Northern Long-eared Bat	Silver-haired Bat	Eastern Red Bat	Hoary Bat
MAJOR										
Forest Transition										
North Central Forest										
Northeast Sands										
Northern Highland										
Northwest Sands										
Superior Coastal										
Western Coulee and Ridges										
Western Prairie										
IMPORTANT										
Central Lake Michigan										
Central Sand Hills										
Central Sand										
Northern Lake Michigan										
Northwest										
Southeast Glacial										
Southwest Savanna										
PRESENT (MINOR)										
Southern Lake Michigan										

Color Key

 = HIGH probability the species in this Ecological

 = MODERATE probability the occurs in this Ecological




 = LOW or NO probability the occurs in this Ecological

* The number shown in parentheses is the number of Species of Greatest Conservation Need from a taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Conservation Need that met the criteria necessary for inclusion in this

Table 3-50. Vertebrate Species of Greatest Conservation Need that are (or historically were) *moderately* associated with coolwater streams and their association with Ecological Landscapes that support coolwater streams.

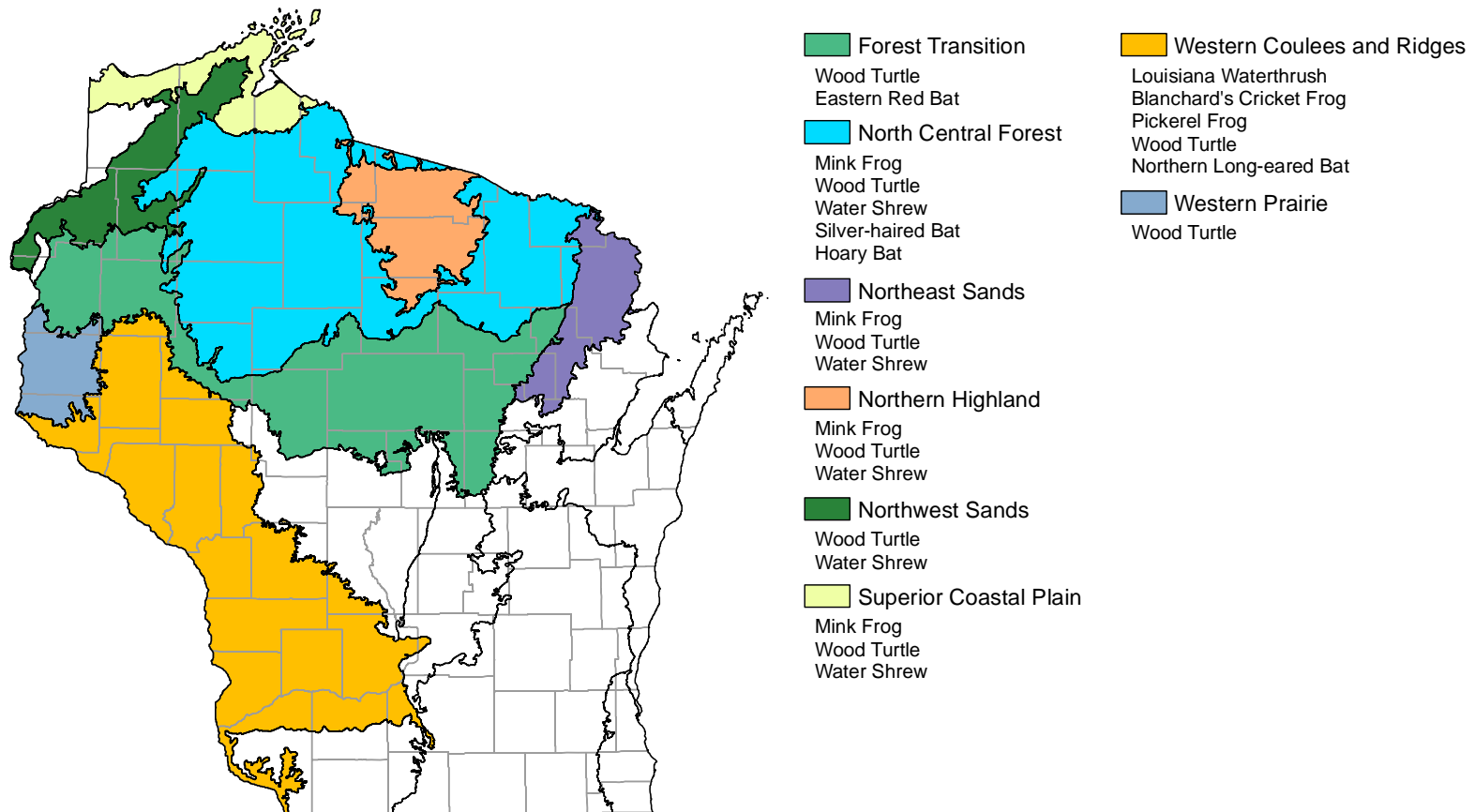
Coolwater Streams	Birds (1)*					Fish (1)		Herptiles (3)		
	Solitary Sandpiper	Redside Dace	Four-toed Salamander	Blanding's Turtle	Queen Snake					
MAJOR										
Forest Transition										
North Central Forest										
Northeast Sands										
Northern Highland										
Northwest Sands										
Superior Coastal Plain										
Western Coulee and Ridges										
Western Prairie										
IMPORTANT										
Central Lake Michigan Coastal										
Central Sand Hills										
Central Sand Plains										
Northern Lake Michigan Coastal										
Northwest Lowlands										
Southeast Glacial Plains										
Southwest Savanna										
PRESENT (MINOR)										
Southern Lake Michigan Coastal										

Color Key

-  = HIGH probability the species occurs in this Ecological Landscape
-  = MODERATE probability the species occurs in this Ecological Landscape
-  = LOW or NO probability the species occurs in this Ecological Landscape

* The number shown in parentheses is the number of Species of Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Conservation Need that met the criteria necessary for inclusion in this

Figure 3-2. Vertebrate Species of Greatest Conservation Need that have both a significant association with coolwater streams and a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of coolwater streams.



3.3.1.2.3 Threats and Priority Conservation Actions for Coolwater Streams

The following list of threats and priority conservation actions were identified for coolwater streams in Wisconsin. The threats and priority conservation actions described below apply to all of the Ecological Landscapes in Tables 3-49 and 3-50 unless otherwise indicated.

Threats and Issues

- Non-point source pollution from changing land use practices within the watershed including urbanization and poor agricultural practices are leading to habitat degradation and loss.
- Inadequate storage of animal waste and winter spreading of liquid manure are not common, but can have far-reaching negative impacts when waste reaches streams.
- In some situations, groundwater pumping is causing declines in stream flow and increases in water temperature.
- Global climate change may further lead to declines in flow and increases in water temperature.
- Dams have eliminated stream habitat, blocked migrations, and fragmented species populations.
- Some streams in deforested areas of steeper topography have been degraded by serious erosion and gullyng.
- Reaches of some streams have been identified as still being impacted by significant masses of tree bark and other remnants from historic logging practices, which cover the native stream bottom material and alter or eliminate benthic substrates and habitats.

Priority Conservation Actions

- Improve watershed and riparian land-use decisions and management practices to reduce non-point source pollution.
- Restrict excessive groundwater pumping and protect aquifers.
- Continue restoration of stream habitat and morphology, focusing on areas where land use within the watershed and other factors suggest the restoration may be successful over the long term.
- Restore floodplain function to coolwater streams through projects that restore and reconnect stream channels with their floodplains whenever possible.
- Reduce greenhouse gas emissions to slow rate of climate change.
- Remove dams or install effective fish passages at them.